Division of Cancer Epidemiology and Genetics Explores Cancer Health Disparities

NCI's Division of Cancer Epidemiology and Genetics (DCEG) carries out population-based and interdisciplinary research to discover the genetic and environmental determinants of cancer. DCEG's research portfolio includes a broad range of studies that target special populations and seek to uncover the underlying reasons for cancer-related health disparities. The study of racial patterns, geographic variation, and temporal trends in cancer rates has provided important clues to the role of lifestyle and other environmental factors that affect cancer risk. Case-control, cohort, and intervention studies help to elucidate the causes and methods to prevent health disparities.

NCI's recently published Cancer Atlas includes updated maps of cancer mortality rates with data specifically for Black Americans. These cancer maps can be used to pinpoint areas of increased cancer mortality in the U.S. for minority populations and provide direction for current and future DCEG health disparities studies.

Pancreas Cancer

Why do black Americans have rates 50%-90% higher than white Americans?

	Age-adjusted rate	Risk factor-adjusted rate*
Men		
White	**12.8**	**6.5**
Black	**16.0**	**7.5**
Women		
White	**9.0**	**4.8**
Black	**13.3**	**1.6**

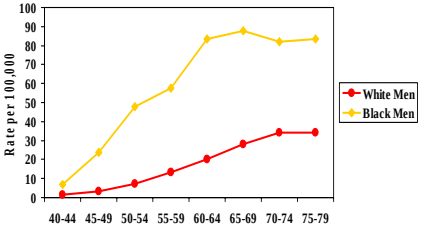
***Rate removing effects of smoking, diabetes, family history, alcohol and obesity**

- DCEG sponsored a population-based case-control study in Atlanta, Detroit, and New Jersey
- Among men, cigarette smoking and diabetes explain almost all the black/white rate difference
- Among women, moderate/heavy alcohol use and high BMI also contribute to rate differences

Genetic and molecular markers of susceptibility such as the FHIT and MMP-1 proteins associated with smoking are being investigated as potential indicators of persons at high risk of pancreas cancer

Esophageal Cancer

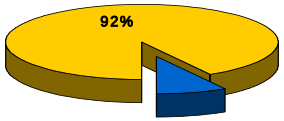
1986-90 Incidence Among Males



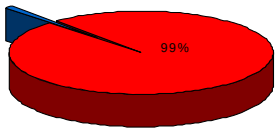
- Rates among blacks about three times those among whites
- Squamous cell carcinomas accounted for almost 90% of all esophageal cancer among blacks and almost 50% among whites
- The black/white squamous cell carcinoma ratio was more than five

To what extent do these risk factors account for the black/white excess?

Alcohol and Tobacco



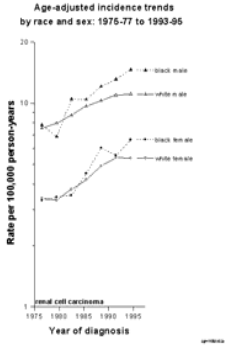
Alcohol, Tobacco, Diet, and Income



4 factors together account for:

- Almost all esophagus cancer
- 99% of excess in black men
- Lifestyle modification would decrease incidence in both races and narrow racial disparity

Kidney Cancer



- Most rapidly increasing cancer among blacks
- Emerging excess among blacks
- Rising incidence rates among whites and blacks

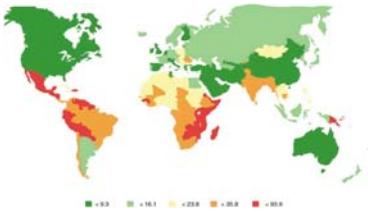
To date, no study of renal cell cancer has included a sufficient number of blacks to examine reasons for their higher incidence and rapid rate increases

NCI Kidney Cancer Study in Chicago and Detroit

- Study will identify risk factors that contribute to the excess of renal cell cancer among blacks and point to areas for prevention
- Evaluate whether risk factors are different in blacks and whites
- Determine the extent of the excess incidence among blacks that can be explained by exposure or genetic risk factors
- Data collection will end December 2006

Cervical Cancer

International Incidence Patterns



Rates per 100,000 woman-years, age-adjusted using the world standard

- Cervical cancer is the second most common cancer among women worldwide disportionately affecting underserved populations
- Almost 80% of the cases occur in developing countries
- Highest rates are in Latin America and the Caribbean, sub-Saharan Africa, and South and South East Asia

A vaccine against HPV types linked to cervical cancer could greatly contribute to efforts to overcome health disparities worldwide

NCI/Costa Rican Human Papilloma Virus (HPV) Vaccine Efficacy Trial.

- A population-based, randomized, blinded clinical trial will evaluate the efficacy of an HPV16/18 (bivalent) virus-like particle vaccine to protect against the development of high-grade cervical intraepithelial neoplasia (CIN2+)
- The study will include 12,000-15,000 women from the Province of Guanacaste, Costa Rica
- Women will be enrolled August 2004 and followed for 4 years
- Results are expected in 2008

Prostate Cancer

New DCEG Study: To characterize the burden of prostate cancer in Accra, Ghana, West Africa, for comparison with other population groups in the U.S. and Caribbean to identify genetic, environmental, and life style factors that may provide insight into racial disparity in prostate cancer.

The specific goals include:

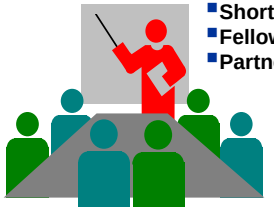
- Screening patients presenting with symptoms for prostate cancer or benign prostatic hyperplasia
- Abstracting medical charts for at least 200 biopsy confirmed prostate cancer cases and 200 BPH cases
- Screening over 1,000 randomly selected men aged 50-74 for prostate cancer and BPH
- Comparing prostate cancer risk in Accra to that of African-Americans in SEER, both before and after widespread use of screening in the U.S.

Progress too date:

- Medical records and biopsy slides from 597 cancer cases have been retrieved
- Prostate cancer screening for the 1000 healthy men will take place July 2004 - June 2005..

DCEG Training Opportunities

Visit us on the web at http://dceg.cancer.gov



- **Sabbaticals**
- **Short visits**
- **Fellowships**
- **Partnerships**